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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,687	10/05/2001	Fumio Miyajima	0038-0367P	1863

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EXAMINER

DAVIS, ROBERT B

ART UNIT PAPER NUMBER

1722

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/970,687	Applicant(s) MIYAJIMA ET AL.	
	Examiner Robert B. Davis	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1202</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Kawahara et al (6,511,620: figures 15-23 and column 11, line 27 to column 13, line 10).

Kawahara et al teach a method of resin molding, comprising the steps of: setting a work piece (258) to be molded on a lower die (204); feeding release film (256a), which is easily peelable from the upper die (206) and resin for molding, between an upper die (206) and the work piece so as to cover a resin molding space of the upper die; clamping the work piece and the release film by the upper die and the lower die; and molding the work piece with the resin, wherein a clamber (208), which is provided to the upper die, which encloses the resin molding space and which is capable of vertically moving and biased downward so as to downwardly projected a lower end of the clamber from a resin molding face of the upper die, contacts the work piece molded so as to seal peripheral of the resin molding space in said clamping step, and wherein the resin is introduced into the resin molding space while the upper die is gradually moved to the lower die, the movement of the upper die is stopped at a clamping position, then

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the resin molding space is fully filled with the resin so as to completely mold the work piece.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al (6,511,620: figures 15-23 and column 11, line 27 to column 13, line 10) taken together with Miyajima (EP 759349 A2: figures 1-15).

Kawahara et al disclose a resin molding machine (200), comprising, a lower die (204) on which a work piece (258) to be molded is set; an upper die (206) clamping the work piece with said lower die; a clasper (208) being provided to said upper die, said

clammer enclosing a molding space of said upper die, said clamper being capable of vertically moving in said upper die and always biased downward by spring (234, see column 13, lines 8-10), wherein a lower end of said clamper is downwardly projected from a resin molding face of said upper die when said lower die and upper die are opened; a release film (256a), which is easily peel-able from said upper die and resin for molding, so as to cover the resin molding space, further comprising another release film (256b) so as to cover a surface of said lower die on which the workpiece is set, further comprising a release film sucking mechanism (see figure 17 and element 220), which fixes the release film on a lower end face of said clamper by air suction and which fixes the release film on an inner face of the resin molding space, which is constituted by the resin molding face of said upper die and an inner face of said clamper, by sucking air from an ceiling face of the resin molding space, a first air-hole (220) being opened in the lower end face of said clamper; a second air-hole (shown in figure 17 below the seal adjacent spring 234) being opened in an inner face of said clamper and communicated to an air path, which communicates said second air-hole to a side face of said upper die; and an air sucking unit being communicated to said first air-hole and second air-hole for air suction. The reference teaches a dummy cavity (212) in the upper mold for receiving excess resin. The reference teaches upper and lower release films, but does not disclose the release film feeding mechanism.

Miyajima discloses a two part mold for encapsulating semiconductors having upper and lower film feeding mechanisms (26, 27 in figure 10).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of Kawahara et al by having automatic release film feeding means as disclosed by Miyajima for the purpose of automating the release film feeding and removing steps instead of feeding individual sheets. In regards to claim 8, it would have been further obvious to supply the excess resin cavity in the lower mold instead of the upper mold as such equates to a mere relocation of parts without changing the function as the dummy cavity would still be located on the parting surface of the mold and function to receive excess resin squeezed out from the primary cavity.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al taken together with Miyajima as applied to claims 1-4 and 8 above, and further in view of Lee et al (6,173,490: figures 3 and 4A) or Lim et al (6,544,816: figure 11).

The combination of Kawahara et al and Miyajima discloses all claimed features except for the use of an upper mold having a plurality of article forming cavities.

Lee et al disclose an upper mold having a plurality of cavities (230) for forming individually encapsulated chips on a common support substrate.

Lim et al disclose an upper mold (113) having a plurality of cavities, which are divided by protrusions (114) for forming individually encapsulated chips on a common support substrate.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of the combination by using an upper mold having a plurality of molding cavities as disclosed by Lee et al and Lim et al for the purpose of

forming encapsulated chips which are partitioned such that the recesses can be used as a cutter guide when cutting the substrate to form individual chips.

7. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahara et al taken together with Miyajima and either Lee et al or Lim et al as applied to claim 5 above, and further in view of Thummel (6,117,382: figures 1-8).

The combination of Kawahara et al and Miyajima with either Lee et al or Lim et al disclose all claimed features except for upper and lower molds having a plurality of cavities.

Thummel discloses an upper mold (12) having a plurality of cavities (16A) and a lower mold having a plurality of cavities (16B) to form plural encapsulated chips simultaneously on a substrate (56).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the apparatus of the combination by using upper and lower molds having a plurality of cavities as disclosed by Thummel for the purpose of forming multiple encapsulated products simultaneously while doubling the output of the molds of Lee et al or Lim et al by forming encapsulated articles with both the upper and lower molds.

Allowable Subject Matter

8. Claims 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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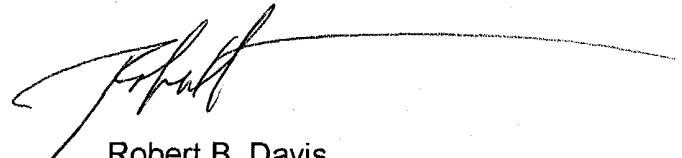
9. The following is a statement of reasons for the indication of allowable subject matter: None of the prior art of record teaches or suggests a molding apparatus as in claim 1, wherein the upper mold is biased towards the lower mold along with the clamber. Kawahara et al disclose an upper mold wherein the middle portion (206) is fixed to the upper plate (232) and the clamber (208) is biased away from the upper plate, but the reference does not disclose or suggest the middle portion being biased as well as the clamber.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining references show various encapsulation assemblies.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Davis whose telephone number is 703-308-2625. The examiner can normally be reached on Monday-Friday 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Robert B. Davis
Primary Examiner
Art Unit 1722

9/24/07